CLAIMS

1. A composition for making an ionomeric cement, comprising at least one copolymer comprising at least two different carboxylic acid-containing monomers, wherein said copolymer has pendent polymerizable functional groups, and a comonomer containing one or more functional groups reactive with said polymerizable functional groups, wherein said comonomer, at least one of said carboxylic acid containing monomers, or both, comprises an amino acid.

2. The composition of claim 1 wherein one of said carboxylic acid-containing monomers comprises acrylic acid (AA).

3. The composition of claim 1 wherein one of said carboxylic acid-containing monomers comprises itaconic acid (IA).

4. The composition of claim 1 wherein said two monomers comprise acrylic acid and itaconic acid.

5. The composition of claim 1 wherein said copolymer comprises three different carboxylic acid-containing monomers, one of which comprises an amino acid.

6. The composition of claim 5 wherein said amino acid is an acryloyl amino acid or a methacryloyl amino acid.

7. The composition of claim 6 wherein said amino acid is acryloyl amino acid selected from the group consisting of acryloyl beta-alanine (ABA), acryloyl aspartic acid (AASPS), acryloyl glycine (AG), acryloyl glutamic acid (AGA), and acryloyl 6-aminocaproic acid (A6ACA).

8. The composition of claim 6 wherein said amino acid is a methacryloyl amino acid selected from the group consisting of methacryloyl beta-alanine (MBA), methacryloyl glycine (MG), methacryloyl aspartic acid (MASPA), methacryloyl 6-aminocaproic acid (M6ACA) and methacryloyl methionine (MMET).

9. The composition of claim 1 wherein said copolymer comprises Poly(AA-IA-AGA) or Poly(AA-IA-MGA).

10. The composition of claim 1 wherein said copolymer comprises Poly(AA-IA-AG) or Poly(AA-IA-MG).

11. The composition of claim 1 wherein said copolymer comprises Poly(AA-IA-ABA) or Poly(AA-IA-MBA).

12. The composition of claim 1 said copolymer comprises Poly(AA-IA-A6ACA) or Poly(AA-IA-M6ACA).

13. The composition of claim 1 wherein said pendent polymerizable functional groups comprise ethylenically unsaturated groups.

14. The composition of claim 13 wherein said copolymer has glycidyl methacrylate (GM) groups grafted thereon.

15. The composition of claims 13 wherein said copolymer has 2-isocyanatoethylmethacrylate (IEM) groups grafted thereon.

16. The composition of claim 1 wherein said pendent polymerizable functional group comprise epoxy groups.

17. The composition of claim 1 wherein said comonomer comprises an acryloyl amino acid or a methacryloyl amino acid.

18. The composition of claim 1 wherein said comonomer comprises acryloyl beta-alanine.

19. The composition of claim 1 wherein said comonomer comprises 2-hydroxyethyl methacrylate (HEMA).

20. The composition of claim 1 wherein both one of said carboxylic-acid containing monomers and said co-monomer comprise an amino acid.

21. The composition of claim 1 comprising first and second copolymers, each of which contains an amino acid-containing monomer, wherein the amino acid in each of said copolymers is different.

22. The composition of claim 21 wherein combinations of said first and second copolymers are Poly(AA-IA-

MGA)/Poly(AA-IA-M6ACA), Poly(AA-IA-MGA)/Poly(AA-IA-MG) or Poly(AA-IA-AASPA)/Poly(AA-IA-MG).

23. The composition of claim 1 further comprising polyacrylic acid.

24. An ionomeric cement comprising the composition of claim 1, a reactive filler and water.

25. The cement of claim 24 further comprising a polymerization initiator.

26. The cement of claim 25 wherein said initiator comprises a photo-initiator.

27. The cement of claim 25 wherein said initiator comprises a reducing agent and an oxidizing agent.

28. The cement of claim 27 wherein said reducing agent comprises ascorbic acid.

29. The cement of claim 27 wherein said reducing agent is in encapsulated form.

30. The cement of claim 24 further comprising a polymerization inhibitor.

31. The cement of claim 30 wherein said inhibitor is butylated hydroxytoluene.

32. The cement of claim 24 further comprising a modifying agent.

33. The cement of claim 32 wherein said modifying agent comprises tartaric acid.

34. The cement of claim 24 further comprising polyacrylic acid.

35. A kit for preparing an ionomeric cement composition, comprising: a first package containing at least one copolymer comprising at least two different carboxylic acid-containing monomers, wherein said copolymer has pendent polymerizable functional groups, and a comonomer containing one or more functional groups and that is reactive with said polymerizable functional group, wherein said comonomer, at

least one of said carboxylic acid-containing monomers, or both, comprises an amino acid.

36. The kit of claim 35 wherein said first package further comprises water, and wherein said kit further comprises a second package comprising a reactive filler.

37. The kit of claim 36 wherein said second package further comprises a reducing agent.

38. The kit of claim 35 wherein said first package further comprises a reactive filler and wherein said kit further comprises a second package comprising water.

39. The kit of claim 35 wherein said copolymer and said comonomer are present in lyophilized form.

40. The kit of claim 35 further comprising a second package and wherein one of said packages further comprises a reducing agent and the other of said packages further comprises an oxidizing agent.

41. A polymerization system comprising at least one copolymer comprising at least two different carboxylic acid-containing monomers, one of said monomers being an amino acid, wherein said copolymer has pendent polymerizable functional groups, and a comonomer containing one or more functional groups reactive with said polymerizable functional groups.

42. A polymerization system comprising at least one copolymer comprising at least two different carboxylic acid-containing monomers, wherein said copolymer has pendent polymerizable functional groups, and an amino acid comonomer reactive with said polymerizable functional groups.